Emerging Opportunities (EO)

Proposal Due Date: December 4, 2007

The Emerging Opportunities (EO) topic is designed to enhance the ability of the NSF SBIR/STTR program to support unique and timely, near-term business opportunities enabled by the deployment of advanced technology. Due to the focus on *near-term commercialization*, the EO topic will only support innovations that appear capable of attracting a third-party partnership within a *three-year* time frame.

The Division of Industrial Innovation and Partnerships (IIP), which manages the NSF SBIR/STTR program, recognizes the importance of partnerships for technology commercialization and will require each Phase I proposal to validate the potential of a partnership with letters of support for subsequent commercialization of the proposed innovation (see mandatory requirements below). Significant partnerships are important valuation-enhancing milestones and the partnerships are expected to be in place *within a window of three years from time of the Phase I proposal award.* Suitable forms of partnerships with third parties are:

1. an equity investment,
2. a strategic partnership with financing or license-generated revenue,
3. customer sales.

The EO topic places prominence on the description of Commercial Potential. It is expected that teams will have undertaken a significant amount of opportunity vetting prior to proposal submission. This vetting will have taken place with potential stakeholders (customers, partners and investors) and credible evidence of this effort will be present in successful proposals.

In order to establish appropriate partnerships, a team must be balanced and include business development and product positioning skills in addition to technical, financial and leadership talent. An assessment of the competencies of the team submitting a Phase I proposal to the EO topic will therefore be a significant element of the review criteria. Part 4 of the Project Description (Commercial Potential) should provide details of the skills that the team possesses as well as those that will need to be augmented during the path to market.

Mandatory Requirement: Letters of Support for the Technology

Inclusion of letters of support for the technology within the proposal is *mandatory* for proposals being submitted to the EO topic. Letters must come from potential stakeholders (potential customers, investors or strategic partners) and provide support that substantiates the assessment of the opportunity. The number of letters cannot exceed three. Letters should contain evidence of potential support of the product or service and must be on letterhead (email correspondence from the potential partner will not be accepted) and signed. The letters must contain affiliation and contact information for the

signatory stakeholder. Letters from Regional, State or Local Development Organizations or from subcontractors to or consultants on the proposal will not be accepted as letters of support.

Note: If appropriate letters of support are not contained within the proposal, the proposal will be considered non-responsive and returned without review for failing to fall within the scope of the EO topic.

Mandatory Requirement: Emphasis on Commercial Potential

In addition to the standard criteria of the NSF SBIR/STTR program, a substantive description of the Commercial Potential for the innovation must be part of an EO Phase I proposal. *The appropriate amount of space within the Project Description to dedicate toward the Commercial Potential for the EO topic is 3 to 5 pages.*

Note: If the description for Commercial Potential (Part 4 of the Project Description) is not within the 3 to 5 page range, the proposal will be considered non-responsive and returned without review for failing to fall within the scope of the EO topic.

Importance of Communication with Program Officer

A company planning to submit a proposal to one of the EO subtopics is *strongly encouraged* to describe the innovation and business opportunity to the cognizant program officer and receive feedback prior to proposal submission (see below for contact information). You may contact the program officer at any time before the submission deadline. Note, however, that communication with the program officer will become increasingly difficult as the deadline nears.

Specific Technologies Supported by the Emerging Opportunities Topic:

Research proposals in science and engineering responding to the EO topic must address one of the subtopics outlined below.

Note: Research proposals that are not responsive to the subtopics outlined below will be returned without review.

When submitting a proposal to the EO Topic, code the proposal to whether it is Software and Services (SS) or Components and Systems (CS) or Bio and Environmental Technologies (BE) and also provide the number and letter (if applicable) corresponding to the specific subtopic under which you are submitting the proposal, e.g., SS2, for proposals in the area of “Software and Services/ Web services architectures” or BE1c for “Bio and Environmental Technologies/Applied biotechnology/Food biotechnology” In addition, use the code as the first item in the key words/phrases portion of the Project Summary of your proposal.

BE. Bio and Environmental Technologies

Only proposals in the following Bio and Environmental Technologies subtopic areas will be supported:

1. **Applied biotechnology**
    a. **Environmental biotechnology**
    b. **Agricultural biotechnology**
    c. **Food biotechnology**
    d. **Marine and aquatic biotechnology**
2. **Biomedical sensors and/or biosensors**
3. **Bioenergy**
4. **Sustainable technologies for green-manufacturing**
    a. **Waste-reduction**
    b. **Waste utilization**
    c. **Waste treatment**
    d. **Waste abatement**
5. **Bio-based materials**
6. **Biomedical technologies**
    a. **Diagnostics**
    b. **Drug delivery**
    c. **Tissue engineering and/or repair**
    d. **Biofilms**
    e. **Biomedical devices**
7. **Genomics, proteomics, metabolomics or bioinformatics**

Please direct inquiries for the Bio and Environmental Technology subtopics via email to:
Thomas Allnutt: tallnutt@nsf.gov

CS. Components and Systems

Only proposals in the following Components and Systems subtopic areas will be supported:

1. **Sensors for**
    a. **Smart infrastructure**
    b. **Transportation**
    c. **Environmental sensing**
    d. **Detection of and/or countermeasures to Improvised Explosive Devices (IEDs)**
2. **Wireless and wireless-supporting technologies**
    a. **Medical applications**
    b. **Smart antenna systems**
    c. **RF components**
    d. **Tools for wireless device design**
3. **Novel chip architectures**
4. **Optical technologies**
    a. **Data storage**
    b. **Photovoltaic cells and/or concentrators**
    c. **Low power flexible displays**
    d. **Organic light emitting diodes**
5. **Energy**
    a. **Scavenging/harvesting components or systems for portable/remote devices**
    b. **New energy storage technologies**
6. **Innovative approaches to robotic technologies**
    a. **Sensing**
    b. **Perception**
    c. **Actuation**
    d. **Vision**
    e. **Devices that provide new capabilities to medical professionals**
    f. **Systems to extend human capabilities into hazardous environments**
7. **Innovative photolithography techniques for semiconductor manufacturing**
8. **Novel integration of semiconductor components and/or devices into systems**
9. **Nanotechnology**
    a. **Novel production or uses of nanowires**
    b. **Novel production or uses of nanotubes**
    c. **Quantum dot manufacturing**
10. **Assistive technologies for those with disabilities**
    a. **Cognitive and/or learning**
    b. **Other physical disabilities such as motor related, vision- or hearing impaired**

Please direct inquiries for the Components and Systems via email to:
Murali Nair mnair@nsf.gov

SS. Software and Services

Only proposals in the following Software and Services subtopic areas will be supported:

1. **Knowledge discovery (including search), data management and/or visualization**
2. **Web services architectures**
3. **Digital arts**
4. **Virtual/Mixed reality applications**
5. **Broadband-enabled applications**
6. **Peer-To-Peer (P2P) applications**
7. **Tools that enable user-generated content**
8. **Personalized user services including location-based**
9. **Collaboration-enabled applications**
10. **Virtualization**
11. **Human Computer Interface (HCI)**
    a. **Application for human-computer interfaces employing speech, touch, vision or biometric technologies**
    b. **Natural Language Processing (NLP) including language translation or multi-language interfaces**
    c. **Spoken language systems – Conversational dialog management, semantic language analysis or interpretation**
    d. **Real- or non- real time machine learning and/or statistical-based algorithms**
12. **Adaptive manufacturing**
    a. **Data mining for manufacturing system analysis**
    b. **Tools for real-time self-correcting manufacturing**
    c. **Intelligent control of manufacturing processes**
    d. **Intelligent process modeling and/or machine diagnostics**
13. **Simulation for manufacturing**
    a. **Leveraging multi-processor/multi-core environments**
    b. **Predictive modeling (material characteristics, material response, work-piece quality characteristics, tooling or machine tool performance)**
    c. **Virtual reality-based simulation environment (the development of innovative virtual-reality based immersive simulation technologies that will improve manufacturing processes; e.g. simulation environments with human- and hardware-in-the-loop capabilities)**
    d. **Discrete event simulation of manufacturing systems**

Please direct inquiries for the Software and Services via email to:
Errol Arkilic earkilic@nsf.gov